

DSC-AP-0201

I Claim:

1. A washing machine, comprising:

a washing drum;

a drive motor for operating said washing drum and having a rotor and a stator;

a processor-controlled inverter connected to and controlling said drive motor, said drive motor commutating brushlessly by way of said processor-controlled inverter;

an actuator disc connected non-rotatably to said rotor of said motor, said actuator disc having an incremental sensor with mutually spaced actuators disposed along a path of rotary movement;

a pulse sender fixed with respect to the washing machine, and in a course of said actuators moving past said pulse sender trigger incremental counting pulses;

an incremental counter counting the incremental counting pulses for determining information about an instantaneous angular position of said rotor relative to said stator; and

tube
✓
} 2-3.04
M.V.

a processor connected to and controlling said inverter and further connected to said incremental counter, said processor receiving the information about the instantaneous angular position.

2. The washing machine according to claim 1, further comprising a synchronization logic unit connected to and setting said incremental counter to an initial counting position at a predetermined initial position of the path of rotary movement of said washing drum which is non-rotatably connected to said actuator disc and said rotor.

3. The washing machine according to claim 2, further comprising an addition actuator disposed on said actuator disc for activating said synchronization logic unit.

4. The washing machine according to claim 2, wherein said actuator disc has a marked discontinuity oriented to a magnetic field of said rotor in a spatially fixed and pre-known relationship and said synchronization logic unit is activatable thereby.

5. The washing machine according to claim 2, wherein said processor causes a steady feeding of direct current to said drive motor at a beginning of operation until said rotor, being a permanent-magnetic rotor, has rotated relative to said

stator into a rotary position corresponding to that field direction, whereupon said synchronization logic unit is activated and operation of said drive motor is started with a rotating field by way of said process-controlled inverter.

6. The washing machine according to claim 1, wherein said pulse sender operates optoelectronically in a manner of a transmission-type light barrier configuration and a spacing of said actuators on said actuator disc defining a sequence of openings.

7. The washing machine according to claim 1, wherein:

said actuators are reflectors; and

said pulse sender operates optoelectronically in a manner of a reflection-type light barrier configuration with a sequence of said reflectors disposed on said actuator disc.

8. The washing machine according to claim 1, wherein said incremental sensor supplies pairs of counting pulses, said pairs being phase-displaced relative to each other, wherein any change in a direction of rotation of said rotor and thus said washing drum relative to said pulse sender which is fixed with respect to the washing machine is derived from a sequence

of the counting pulses, for switching over a counting direction in said incremental counter.

9. The washing machine according to claim 2, wherein said synchronization logic unit responds to in-phase relationship of a motor current with a terminal voltage induced by said rotor during a passage through zero of the motor current through that winding line of said stator.

10. The washing machine according to claim 1, wherein a number of said actuators on said actuator disc is an even multiple of a number of magnet dipoles of said rotor.

11. The washing machine according to claim 4, wherein said marked discontinuity is in a form of interrupted or multiple pulse deliveries from said pulse sender.